

CLAIMS

1. A radio communication apparatus, which can perform radio communication with a communication terminal device of another party,
5 comprising:

a reception means for receiving signals transmitted from the radio communication apparatus of another party;

10 a channel time variation detection means for detecting the time variation amount of channel response using the signals received by the reception means; and

a pilot signal insertion interval determination means for determining pilot signal insertion intervals using the detected time variation amount of channel response.

15 2. The radio communication apparatus according to claim 1 comprising:

a pilot signal insertion means for inserting said pilot signals into information signals to be transmitted, based on said pilot signal insertion intervals determined by said pilot signal insertion interval determination means; and

20 a transmission means for transmitting information signals into which said pilot signals have been inserted to said radio communication apparatus of another party.

3. The radio communication apparatus according to claim 1 comprising:

25 an information signal division means for dividing said

information signals to be transmitted based on said pilot signal insertion intervals determined by said pilot signal insertion interval determination means;

- a pilot signal insertion means for inserting said pilot signals into
5 post-division information signals which have been divided by the information signal division means; and

a transmission means for transmitting said information signals into which pilot signals have been inserted to said radio communication apparatus of another party

10

4. The radio communication apparatus according to claim 1 comprising:

an information signal processing means for processing post-division information signals which have been divided by said information signal division means;

- 15 an information signal merging means for merging post-division information signals which have been processed by said information signal processing means;

a pilot signal insertion means for inserting said pilot signals into information signals which have been merged by said information signal
20 merging means, based on said pilot signal insertion interval determined by said pilot signal insertion interval determination means;

and a transmission means transmitting said information signals into which pilot signals have been inserted to said radio communication apparatus of another party.

25

5. The radio communication apparatus according to claim 4 comprising: a division length determination means for determining the division length of said information signals in said information signal division means; wherein

5 the division length determination means is constructed to enable determination of said information signal division length using said time variation amount of channel response.

6. The radio communication apparatus according to claim 1
10 comprising:

a first information signal division means for dividing said information signals to be transmitted;

15 an information signal processing means for processing post-division information signals which have been divided by said information signal division means;

an information signal merging means for merging post-division information signals processed by said information signal processing means;

20 a second information signal division means for dividing information signals merged by said information signal merging means, based on said pilot signal insertion interval determined by said pilot signal insertion interval determination means;

25 a pilot signal insertion means for inserting said pilot signals into post-division information signals which have been divided by the second information signal division means; and

a transmission means for transmitting said information signals into which pilot signals have been inserted to said radio communication apparatus of another party.

- 5 7. The radio communication apparatus according to claim 6 comprising:
 - a division length determination means for determining the division length of said information signals in said first information signal division means; wherein
 - the division length determination means is constructed to
 - 10 determine the division length of said information signals by using said time variation amount of channel response.
- 15 8. The radio communication apparatus according to claim 1 comprising:
 - a transmission means for transmitting said pilot signal insertion intervals to notify said radio communication apparatus of another party of said pilot signal insertion interval determined by said pilot signal insertion interval determination means.
- 20 9. The radio communication apparatus according to any of claim 1 to claim 8 wherein said channel time variation detection means is constructed so as to detect said time variation amount of channel response using signals known to both the transmitter side and the receiver side.
- 25 10. The radio communication apparatus according to any of claim 1 to

claim 8 wherein said channel time variation detection means is constructed so as to detect said time variation amount of channel response using signals which are not known to at least one of either the transmitter side or the receiver side.

5

11. A radio communication method for a radio communication apparatus, which can perform radio communication with a communication terminal apparatus of another party, comprising:

a reception step for receiving signals transmitted from the radio communication apparatus of another party;

a channel time variation detection step for detecting time variation amount of channel response using signals received in the reception step;

and a pilot signal insertion interval determination step for determining said pilot signal insertion interval using said detected time variation amount of channel response.

12. The radio communication method according to claim 11 comprising:

a pilot signal insertion step for inserting said pilot signals into the information signals to be transmitted, based on said pilot signal insertion interval determined in said pilot signal insertion interval determination step; and

a transmission step for transmitting said information signals into which pilot signals have been inserted to said radio communication apparatus of another party.

13. The radio communication method according to claim 11 comprising:
 - an information signal division step for dividing said information signals to be transmitted based on said pilot signal insertion intervals
 - 5 determined in said pilot signal insertion interval determination step;
 - a pilot signal insertion means for inserting said pilot signals into post-division information signals which have been divided in said information signal division step; and
 - a transmission means for transmitting said information signals
 - 10 to which pilot signals have been inserted to said radio communication apparatus of another party.
-
14. The radio communication method according to claim 11 comprising:
 - an information signal division step for dividing said information signals to be transmitted;
 - 15 an information signal processing step for processing post-division information signals which have been divided in said information signal division step;
 - an information signal merging step for merging post-division information signals which have been processed in said information signal processing step;
 - 20
 - 25 a pilot signal insertion means for inserting said pilot signals into information signals which have been merged in said information signal merging step, based on said pilot signal insertion intervals determined in said pilot signal insertion interval determination step; and

a transmission method transmitting said information signals into which pilot signals have been inserted to said radio communication apparatus of another party.

- 5 15. The radio communication method according to claim 14 comprising a division length determination step for determining the division length of said information signals in said information signal division means using said time variation amount of channel response.
- 10 16. The radio communication method according to claim 11 comprising:
 - a first information signal division step for dividing said information signals to be transmitted;
 - an information signal processing step for processing post-division information signals which have been divided in said information signal division step;
 - 15 division step;
 - an information signal merging step for merging post-division information signals processed in said information signal processing step;
 - a second information signal division step for dividing information signals merged by said information signal merging step, based on said pilot signal insertion interval determined in said pilot signal insertion interval determination step;
 - 20 a pilot signal insertion step for inserting said pilot signals to post-division information signals which have been divided in said second information signal division step; and
 - 25 a transmission step for transmitting said information signals into

which pilot signals have been inserted to said radio communication apparatus of another party.

17. The radio communication method according to claim 16 comprising
5 a division length determination step for determining the division length of said information signals in said first information signal division step by using said time variation amount of channel response.
18. The radio communication method according to claim 11 comprising
10 a transmission step for transmitting said pilot signal insertion interval to notify said radio communication apparatus of another party of said pilot signal insertion interval determined by said pilot signal insertion interval determination means.
- 15 19. The radio communication method according to any of claim 11 to
claim 18 wherein said channel time variation detection step detects said
time variation amount of channel response using signals known to both
the transmitter side and the receiver side.
- 20 20. The radio communication method according to any of claim 11 to
claim 18 wherein said channel time variation detection step detects said
time variation amount of channel response using signals which are not
known to at least one of either the transmitter side and the receiver side.